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AUTHOR Beebe, Steven A.
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ABSTRACT

This paper reviews several studies that have sought to explain the role of nonverbal communication in education contexts. The specific areas that are explored include kinesics, eye contact, paralanguage, classroom environment, proxemics, and physical appearance. After reviewing research in these areas, the paper examines the research conclusions both in general and for each area. One of the conclusions presented is that teacher education programs should not ignore the impact of teacher-controlled nonverbal communication variables in affecting student achievement and student attitudes toward learning. (A bibliography of the references included in the literature review is appended.) (Author/RL)

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THE ROLE OF NONVERBAL COMMUNICATION IN EDUCATION: RESEARCH AND THEORETICAL PERSPECTIVES

Steven A. Beebe
Department of Communication
University of Miami
Coral Gables, Florida

This paper reviews several studies which have sought to explain the role of nonverbal communication in education contexts. The specific areas of kinesics, eye contact, paralanguage, classroom environment, proxemics, and physical appearance provide a framework for organizing research conclusions that are relevant to the educational process. The research reviewed suggests that the role of nonverbal communication in education is significant. Teacher education programs should not ignore the impact of teacher-controlled nonverbal communication variables in affecting student achievement and student attitudes toward learning.

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THE ROLE OF NONVERBAL COMMUNICATION IN EDUCATION: RESEARCH AND THEORETICAL PERSPECTIVES

Scholars from many disciplines support the conclusion that nonverbal communication variables have an important effect upon human behavior. Anthropologists (cf. Hall, 1966, 1976) have noted the significance of nonverbal behavior across several cultures. Sociologists (cf. Goffman, 1959) have identified cause and effect relationships between nonverbal variables and the formation and maintenance of social relationships. Psychologists (cf. Mehrabian, 1971, 1972; Ekman and Friesen, 1969) have documented the impact of nonverbal cues upon individual human behavior. Communication scholars (cf. Knapp, 1978; Knapp, Hart, and Dennis, 1973) have discovered the effects of nonverbal cues upon the transmission and reception of messages. Other communication scholars have provided comprehensive literature reviews which emphasize the impact of the nonverbal code upon interpersonal communication (cf. Knapp, 1978; Harrison, 1974; Leathers, 1976; Rosenfeld and Civickly, 1976; Burgoon and Saine, 1978; Mehrabian, 1971, 1972).

In addition to the work of anthropologists, sociologists, psychologists, and communication scholars, research into the impact of nonverbal communication in the classroom environment has investigated the effects of nonverbal behavior upon both teachers and students. The purpose of this paper will be to review major avenues of research in nonverbal communication that are applicable to

educational settings.

Clearly, the educational process is also a communication process. Several education theorists (cf. Montague, 1967; Victoria, 1970) have commented on the importance of effective communication as a key element in the education process. Although nonverbal and verbal codes do not operate totally independently of each other (Knapp, 1978; Birdwhistel, 1970), Keith, et al. (1974) and Balzer (1969) concluded that the nonverbal component of classroom communication is more important than the verbal component. Several recent studies investigating the impact of nonverbal communication in the classroom setting support the position that nonverbal variables play a major role in affecting student learning and student attitudes toward learning (Lewis and Page, 1974; Rezmierski, 1974; Caputo, 1977; Rankin, 1978; Michalak, 1975; Ostler and Kranz, 1976; Treece, 1977; Rollman, 1976; Wiemann and Wiemann, 1975; Beattie, 1977; Rice, 1977; Manos, 1979; Stewig, 1979; Galloway, 1974; Credell, 1977; Richey and Richey, 1978; Smith, 1979).

In spite of the fact that teachers' nonverbal behavior affects the educational process, Davis (1974) discovered that first-grade teachers were not completely aware of the influence their nonverbal behavior had upon their students. This lack of teachers' awareness of the significance of nonverbal cues has prompted Galloway (1968, 1970, 1976) to advocate teachers' receiving training in specific nonverbal skills. Davis (1974) and Keith, et al. (1974) agree, as do Gray (1973), Hennings (1975), Rezmierski (1974), and Victoria (1971). In brief, then, nonverbal communication is of great importance in educational settings, and teachers need specific guidance as to

how both individual variables and combinations of variables affect students. The following literature review can help provide such guidance.

Review of the Literature

The remaining protion of this paper will identify recent research efforts which have attempted to document the role of nonverbal communication in education. Although there have been several previous efforts to review nonverbal research and to apply the research conclusions to the classroom (cf. Knapp, 1971; Thompson, 1973; Galloway, 1971, 1972, 1976; Byers and Byers, 1972; Wiemann and Wiemann, 1975), much of the research reviewed by these authors was not conducted in educational settings. While useful, such reviews necessarily rely heavily upon implication. Smith (1979) has concluded that research actually conducted in educational settings is more useful to teachers. Thus, studies conducted in educational settings will be emphasized in this paper. Studies not conducted in a classroom context will be noted when they can support other research findings applicable to education. Studies which have investigated the effects of nonverbal communication upon special education classes and autistic children are not included.

Kinesics

Kinesics is the study of posture, movement, and gesture. Several researchers have devised nonverbal interaction analysis

categories in an effort to identify the types of movements that yield the most positive educational benefits (cf. Love and Roderick, 1971; Grant and Hennings, 1971; Civickly, 1973; French, 1971; Koch, 1971; Willett, 1976; Willett and Smythe, 1977). These studies help to identify specific teacher behaviors that can both improve and harm the educational process.

Willett (1976) compared the nonverbal behaviors of "effective" and "average" teachers. He concluded that "effective" teachers use more motions than "average" teachers when facilitating student-to-instructor interaction, when focusing student attention on key points, and when demonstrating and illustrating concepts to students. Similarly, Seals and Kaufman (1975) found that more active teachers elicit more positive perceptions from students than do inactive or "still" teachers. And Mehrabian (1971) agreed that teachers who use many gestures during classroom presentations will foster positive student attitudes. Not only do teachers' movements and gestures influence student attitudes, Wycoff (1973) found that for secondary students teacher movement even results in better test scores on the material presented. Interestingly, though, elementary students exposed to more vigorous teacher movement scored lower on a comprehension test than did their counter parts learning from a less active instructor. The author suggests that increased stimulus variation is attention catching for older students, but possibly distracting for younger children. Students also base their judgements of teachers' personalities at least in part upon teacher activity. Bayes (1970) and Gafner (1977) concluded that students rely upon kinesic information to evaluate teacher "warmth." Bayes

(1970) noted the importance of teachers' smiles in contributing to perceived warmth. Keith, et al. (1974) also noted the importance of teacher smiles in affecting students' positive perceptions of their instructors.

Both the exhibition and interpetation of teacher kinesic behavior may be attributable, at least in part, to culture (Morain, 1978). Morain suggests several activities which could be used to increase students' awareness of the cultural aspects of nonverbal communication.

Grant (1973) hypothesized that the teaching environment might also affect teacher movement. She concluded that teachers' nonverbal behavior is more informal in open-area classrooms than they are in more traditional, smaller classrooms.

Eye Contact

Student and teacher eye contact is another important nonverbal variable that affects the educational process. The studies reviewed here suggest that eye contact has a notable effect upon student retention of information, attitudes toward the teacher, attention, and classroom participation.

Research by Cobin and McIntyre (1961) and Beebe (1980), conducted in a non-educational context, suggests that direct eye contact has a positive effect upon listener comprehension of an informative presentation. Even though one must exert caution in generalizing the results of these studies to the classroom, they nevertheless suggest the importance of eye contact in determining retention of the information presented.

Research by Breed (1971) is more directly applicable to the classroom. After conducting a series of four experiments, Breed reported that teacher eye contact did not significantly affect student comprehension when lectures were presented via videotape; Breed suspected that students viewing the videotapes realized they were not really being observed, a situation which contributed to their inattentiveness and resulting poor retention. Nor did eye contact significantly improve student test scores when the lecture material was very interesting. Students seem to remember such information, regardless of instructor eye contact. In other classroom situations, however, Breed reported that a moderate level of teacher eye contact does generally result in improved retention of the information presented. The findings of Breed, Christiansen, and Larson (1972) were similar: students who received virtually continuous gaze by the teacher achieved higher test scores than did students who received no eye contact. Finally, a recent investigation by Driscoll (1979) found that eye contact is a key factor in improving student retention scores, and that instructor eye contact in combination with dynamic vocal delivery and gestures also contributes to improved retention scores.

In addition to studying eye contact and comprehension, several researchers have hypothesized that more direct speaker eye contact enhances an audience's perceptions of the speaker's effectiveness. Research by Cobin (1963), Beebe (1974), Jensen and Garner (1972), and Franzolino (1974) found that direct eye contact improves audience perceptions of a speaker. Beebe (1980) also found that a speaker delivering an informative speech to a group of students was perceived

as more credible when she had a high level of eye contact than when she used little eye contact. Investigating the effects of speaker posture and vocal inflection in addition to eye contact, Beebe found eye contact to be the most important variable to affect either credibility or listener comprehension.

Again, studies with more direct implication for the classroom have also been conducted. Breed (1971) discovered that even when teachers were presenting interesting material- lack of eye contact resulted in students' forming negative attitudes toward the instructor. LeCompte and Rosenfeld (1971) found that when the experimenter looked at his subjects while he was reading instructions, he was rated as "slightly less formal and less nervous" than was the experimenter who read the instructions with no eye contact. And Breed, Christiansen, and Larson's (1972) students who received no eye contact, felt their teacher was less relaxed and less organized than did their counterparts who were subjected to more direct gaze.

Yet another benefit of instructor eye contact is greater student attentiveness. A study by Jecker, Maccoby, and Breitrose (1965) suggests that teachers can be trained to identify student nonverbal behaviors associated with inattention. These authors recommend that teachers should maintain eye contact with their students to monitor such indices of student attention as blinking, brow raising, duration of eye contact with the instructor, and frequency and speed of looking and not looking at the instructor. Obviously, the teacher must be watching the students to identify student inattention. Breed, Christiansen, and Larson (1972) also concluded that mutual eye contact between teacher and student results in more attentive students and subsequently higher grades. And

Breed (1971), too, found that direct teacher eye contact seems to improve student attentiveness.

Another researcher to document the importance of eye contact, Caproni (1977), found that eye contact influences student participation in class. Caproni asked observers to note the effects of eye contact and instructor position on the students' initiation of class discussion. Students who had more eye contact with the teacher participated more often in the seminar than did students who were situated in areas that resulted in less eye contact with the instructor.

Instructor eye contact does seem to influence student retention, perceptions of the instructor, attention, and class participation. But there is some question as to what is the ideal amount of eye contact between teachers and students. Exline (1971) asked college students what they thought would be the "most comfortable" proportion of time for eye contact when they interact interpersonally in speaking and listening situations. Students preferred fifty percent eye contact, rather than one hundred percent eye contact or no eye contact. It is hard, though, to be rigidly prescriptive. Cultural backgrounds must also be taken into consideration. Students from one culture may respond differently to teacher eye contact than students from another. A study by Norton and Dobson (1976), as cited by Smith (1979), makes the following observations about eye contact:

> Caucasian six-year-old children considered eye contact to be neutral, but older Caucasian children considered eye contact increasingly negative with age. Black and Indian six-year-old children considered eye contact to be negative and considered it increasingly more neutral with age. Caucasian children have different perceptions of eye contact with teachers than do Black and Indian children when they enter school. The patterns begin to

> reverse as more time is spent in the school experience due to the wide use of eye contact by teachers in the elementary school and the consequences that follow such occasions (pp. 99-100).

In a similar vein, one of the few studies not to find a positive relationship between eye contact and perceived effectiveness was a study conducted by Ligons (1976), who found that Black fourth, fifth, and sixth graders did not find their teacher more competent when the teacher employed high amounts, rather than low amounts, of eye contact. It is possible that the students' cultural expectations about teacher eye contact affected their reaction to a high level of teacher eye contact.

Paralanguage

Paralinguistic cues refer to such vocal characteristics as pitch, rate, tempo, quality, nonfluencies, and pauses. Several studies in non-classroom environments prompt us to make some predictions about the impact of paralinguistic cues in the classroom. Several researchers have studied paralanguage and credibility. Miller and Hewgill (1964) and Sereno and Hawkins (1967) found that vocal nonfluencies detract from a speaker's credibility. Addington (1971) suggests that varied vocal inflection may enhance speaker credibility more than would a monotone delivery. Research by Pearce, et al. (1971, 1972) discovered that "conversational" vocal delivery enhances credibility more than does "dynamic" vocal delivery. A study by McPherson (1978) was designed to determine whether the vocal behavior of a college teacher affects his students' attitudes toward and perceptions of him. Results indicate that teacher

variations in pitch, tempo, and quality do not significantly affect students' attitudes toward the teacher. But a teacher's credibility does seem to be partially dependent upon the degree to which the teacher's verbal and paralinguistic bahavior is consistent. Paralinguistic information that is perceived to be inconsistent with the verbal message can adversely affect a teacher's credibility, according to a study by Karr and Beatty (1979).

Findings about paralanguage and comprehension have been less than consistent. Woolbert (1920) and Glasgow (1952) affirmed that vocal variety improves comprehension. But Diehl, White, and Satz (1961) and Beebe (1980) found that vocal pitch variation does not improve comprehension.

In a study conducted in a classroom context, Shackel (1977) concluded that teacher paralinguistic cues may inadvertently give students information to help them answer questions directed toward them. Shackel suggests that teachers should monitor their nonverbal behavior, especially paralanguage, so as not to cause students to produce the correct answers for the wrong reasons.

The use of silence and pauses is also considered to be paralinguistic information. Hammer (1976) hypothesized that information spoken by an instructor directly after a long pause is learned better than is the identical information presented without the pause. The author concluded that long teacher pauses may help facilitate student learning, the theory being that the period of silence emphasizes the significance of the information presented. Grobsmith (1973) and Jensen (1973) have also theorized that a teacher can use silence to achieve positive educational results. Raymond (1973) found that a student teacher who had been "trained" to use nonverbal cues

more effectively while teaching employed more prolonged pauses than did student teachers who had not been trained to use nonverbal cues to advantage. Pupils responded more favorably to the student teachers who incorporated more pauses into their teaching.

Students subjected to seemingly ineffective instructor paralanguage need not despair, however. Knapp (1978) suggested that listeners may be able to adapt their listening style to what may be perceived as ineffective vocal delivery. He concludes that it takes more than just a manipulation of one paralinguistic cue to affect the comprehension of information presented.

Classroom Environment

Smith (1979) has identified several studies that document effects of environmental design of schools upon both teachers and students. He concludes that there is evidence that the overall design of the physical plant of a school influences the behavior of those who study and work there. Hereford and Hecker (1963) found that school size, rather than building design, is the more important determinant of student attitudes and teacher-student interaction patterns. And Myrick and Marx (1968) found that the overall design and size of a school building affects the size of informal student groups who congregate.

Usually, unless teachers are asked to consult with the architect, they have little control over the overall design and plan of a school building. But after conducting a series of studies, Sommer (1969) made some significant observations about the design of individual classrooms. He felt the teacher must assume some

responsibility for controlling the educational environment. Sommer observed,

> The present rectangular with its straight rows of chairs and wide windows was intended to provide for ventilation, light, quick departure, ease of surveillance, and a host of other legitimate needs as they existed in the early 1900's (p. 981).

Sommer went on to note that in spite of technical advancements in classroom environments, "most schools are still boxes filled with cubes, each containing a specified number of chairs in straight rows" (p. 99).

Rosenfeld (1977), after an extensive review of the literature, supports Feingold's (1971) recommendations that any classroom environment should (1) insure a variety of stimuli, (2) present a feeling of comfort and security, (3) be adapted to the activity, and (4) allow for some privacy and individuality. Several researchers have noted that the average classroom environment, with chairs arranged in straight rows, does not meet these criteria (Adams and Biddle, 1970; Heston and Garner, 1972; Rosenfeld, 1976; Walberg, 1969). Adams and Biddle found that when students are seated in straight rows, most student participation comes from students seated in the front and center of the room—an area that allows more student and instructor eye contact than do other areas.

Is student behavior affected by whether classrooms have windows? Romney (1975) felt a windowless classroom will not significantly affect elementary student behavior, with the possible exception of making students slightly more aggressive. Sommer (1965) found that college students given a choice would rather not sit in a windowless classroom, but that participation increases in a windowless room. He felt that higher levels of activity may explain the increased

participation.

Ketchan (1958), after testing the effects of room color upon student behavior, felt that color can also affect student attitudes and achievement. Students who attended a school with colorful walls, as opposed to students who attended schools whose walls were in need of a coat of paint, or whose walls were painted off-white with white ceilings, showed more improvement after a two-year period in several academic areas than did students who attended the less colorful schools.

Studies by Maslow and Mintz (1956) and Mintz (1956), while not conducted in an educational environment, nevertheless summarize the impact of environment upon human interaction. These researchers "decorated" three rooms. One was refurbished to fit the label of an "ugly room." It resembled a drab, cluttered janitor's storeroom, and was rated as horrible and repulsive by observers assigned to examine the room. The second room used in this study was decorated to look like an "average room," described as looking similar to a professor's office. The third room was decorated with carpeting, drapes, tasteful furniture and room decorations, and labeled a "beautiful room." Raters felt that the "beautiful room" was attractive and aptly labeled as beautiful. After the rooms were deocrated, subjects were assigned to one of the three rooms and were given the task of rating several facial photographs. The results indicated that the environment had significantly affected how the subjects rated the faces. Facial photographs were rated higher in the "beautiful room" than in the "ugly room." Subjects in the "ugly room" also reported that the task was more unpleasant and monotonous than did subjects who were assigned to the "beautiful room." Finally,

subjects assigned to the "ugly room" attempted to leave sooner than did subjects assigned to the "beautiful room." That environment affects the learning process, then, is well documented.

Proxemics

Proxemics is the study of personal space and distance. Classroom seating arrangements, teacher use of space, and the effect of distance upon classroom behavior will be considered.

As was mentioned in the previous section on classroom environment, Sommer (1969) noted how the physical arrangement of furniture can affect both student and teacher use of space. Several other researchers have noted that most classroom environments with chairs arranged in straight rows affect not only the use of space, but verbal interaction, as well (Adams and Biddle, 1970; Rosenfeld, 1976, 1977). Koneya (1976) was also interested in seating arrangements. But rather than just to identify student participation in various seating areas, Koneya was interested in whether certain types of students sit in particular areas of the classroom (e.g., Do more talkative students choose to sit in the center of the class? or Do certain areas of the classroom affect the students' willingness to participate?) His results suggest that low verbalizers avoid central seats more than do high verbalizers. But he also found that students who are low verbalizers generally talk very little, regardless of where they sit.

How does room size affect student and teacher use of space? Little (1965) feels that in a larger room people will probably choose to reduce the distance between others. In support of Little's

hypothesis, Brody and Zimmerman (1975) concluded that students in open classrooms are more comfortable with reduced personal space than are students in more traditional classrooms. Rivlin and Rothenberg (1975) also support this hypothesis. These two authors found that in four open-area classrooms much of the open space was not being used. Teachers apparently do not take advantage of all the space afforded to them.

A study by Hesler (1972) is useful in not only documenting how teachers (both male and female) use classroom space, but also how teachers' use of space affects students' perceptions of teachers. Male teachers move around the room more than do female teachers. Male teachers also have a tendency to remain in the front of the room, either behind or near the desk. Female teachers spend more time in front of the desk than do male teachers. Students feel that the teacher's use of the desk has a negative effect upon their perceptions of the teacher as warm, friendly, and effective. Students feel the teacher is more affectionate toward them when he/she stands in front of the desk or among the students. Berstein (1977) also noted that a teacher's movement toward a student communicates positive attitudes toward the student. Williams (1978) reported that closer distances between teacher and student result in student perceptions of the teacher's being interested in the students' welfare. Mehrabian (1971, 1972) feels that closer personal distances are associated with immediacy or liking; Hesler's (1972) study supports Mehrabian's conclusions. Students generally feel more positive toward the teacher when the teacher is closer to the students. Greater personal distance between teacher and student lowers the teacher's being perceived as warm and friendly.

Physical Appearance

Only a few studies have documented the effects of teachers' physical appearance upon either student attitude toward the teacher or student achievement. Research by Aronson and Mills (1965) in a non-academic setting posited that a physically attractive speaker will be more successful in influencing audience attitudes. Widgery and Webster (1969) suggested that a person who is attractive will generally be rated as a person of better character than will an unattractive person.

A recent study by Chaikin (1978) suggested that the findings of Aronson and Mills, as well as those of Widgery and Webster, may be applicable to educational settings. Chaikin found that a teacher who was rated as more attractive was also rated as more competent and was more likely to motivate students than was an unattractive teacher. Chaikin also reported that eye contact, leaning forward, smiling, and head nodding produced more favorable evaluations than did little eye contact, leaning away from students, and frowning. A teacher's attractiveness did not affect student achievement.

The other side of the physical attractiveness issue concerns whether the student's physical appearance affects teacher evaluations of the student's performance. Research by Singer (1964), Algozzine (1976), and Clifford and Walster (1973) suggested that more attractive children do have an edge in receiving more positive evaluations from their teachers.

Concluding Observations

This paper has identified several studies which have sought to explain the role of nonverbal communication in educational contexts. It is clear that nonverbal variables serve important functions in the instructional process. After discussing the value of nonverbal behavior in the classroom, Bassett and Smythe (1977) identified three functions of nonverbal cues in education. First, nonverbal cues assist in self-presentation. The roles that are assumed by both teachers and students are largely communicated nonverbally. Second, nonverbal behavior aids in the identification of rules and expectations. Classroom norms are often manifested nonverbally. And finally, nonverbal behaviors play an important role in the feedback and reinforcement process. While verbal reward and punishment is significant, nonverbal feedback and reinforcement serve important functions in shaping normative classroom behavior.

While educators have been interested in the importance of nonverbal behavior in the classroom for over two decades (cf. Galloway, 1968), it has only been during the past few years that efforts to measure the specific functions of nonverbal cues in educational settings have been undertaken. The studies reviewed here are useful in helping teachers to explain and predict classroom behavior triggered by nonverbal communication variables.

The specific areas of kinesics, eye contact, paralanguage, environment, proxemics, and physical appearance provide a useful framework for organizing research conclusions that are relevant to education.

Kinesics. Teacher movement, posture, and gesture appear to contribute to student perceptions of the teacher as warm, friendly, and competent. Students generally prefer more active instructors than less active teachers.

Eye Contact. One of the most consistent determinants of enhanced student perceptions of a teacher is the teacher's use of high levels of eye contact. More eye contact generally results in improved comprehension and enhanced attitudes toward the teacher. Differing cultural expectations about the effect of eye contact must be considered, however, when applying the results of the studies reviewed here, to a wide spectrum of cultures.

Paralanguage. Several studies suggest that paralinguistic cues affect students' perceptions of teachers. Other investigations, however, do not document clear relationships between vocal cues and student achievement or student attitudes toward the teacher. Additional research is needed to clarify the importance of paralinguistic information in educational contexts.

Classroom Environment. Several investigations document the importance of the overall design of a school building in affecting student and teacher behavior. The classroom environment (color, use of windows, arrangement of furniture) also can have both positive and negative effects upon learning.

Proxemics. Teacher use of personal space and distance can have an impact upon student classroom participation. Closer personal distance between teacher and student generally is interpreted by students as more concern and interest from the teacher.

Physical Appearance. Extant research suggests that more attractive teachers and students are perceived as more competent than

are those who are less physically attractive.

The role of nonverbal communication in education is significant. Teacher education programs should not ignore the impact of teacher-controlled nonverbal communication variables in affecting student achievement and student attitudes toward learning.

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